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An Evaluation of Science Popularization Project - submitted to Royal Nepal Academy of Science and Technology (RONAST)

AN EVALUATION OF

SCIENCE POPULARIZATION PROJECT

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(RONAST)

submitted by

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Preface

Science and Technology play an important role in the process of development. This has well been demonstrated by the history of development of the developed countries. Knowledge of science widens the intellectual horizon of man, while new technologies enable him to have a life better than that of the past by providing him his basic needs and services. The level of achievement in the development of science and technology, therefore, indicates the stage of the development of a country.

So far, the dissemination of Science and Technology (S & T) has not been so effective in Nepal. The obvious reasons being the underdeveloped media of mass communication (Radio, Television, Newspapers, etc.), the greater number of illiterate and uneducated people both in urban and rural areas, and the lack of institutional programmes for the dissemination of S & T among the general mass. As a result, most of the already ignorant villagers lack the basic scientific knowledge and are ignorant of the recent technological developments in various fields, e.g. agriculture, cottage industry, etc. This is one of the reasons behind the rural poverty, malnutrition, etc.

Keeping in view these circumstances, Royal Nepal Academy of Science and Technology (RONAST) has undertaken a Science Popularization Project (SPP) with the assistance from International Development Research Centre(IDRC) of Canada. This evaluation

study has attempted to examine the strength, weakness and the problems found in the implementation of the project. This study is largely based on the information compiled by the Project.

We would like to express our deep feeling of gratitude to Dr. Ratna Shumsher J.B. Rana ,Vice Chancellor of RONAST for availing us with the oppertunity for conducting the evaluation of Science Popularization Project (SPP).

This evaluation report is the product of the cooperation of the RONAST personnel involved in SPP. The director of the Project- Mr. Gokul Prashad Pokharel, deserves our sincere gratitude for his enthusiastic supports and arrangements during the study. The other project staff, specially, Mr. Prakash Khanal, Mr. Dinesh Bhuju, Mr. Ajay Singh Pradhan, Mr. Prakash Raut, Mr. Binod Adhikari and Miss Parbati Rijal, all deserve our sincere thanks for providing us all the relevant informations despite their limited time. All the respondents, newspaper publishers and radio listeners also deserve our thanks for helping the field survey team by providing their responses.

Lastly, we hope that this report will be helpful and interesting to all those who have been involved in S & T information dissemination in Nepal.

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CHAPTER I

INTRODUCTION

1.1 General Background of the Country

Nepal is a small, developing country with a total area of about 147,181 sq. km. Majority of its people(90%) live in rural areas where agriculture is the prime source of their livelihood.

Nepal entered the phase of planned development in the year 1956; and the Seventh Five Year Plan is now under implementation. Despite the developmental efforts and the significant achievements made in some sectors, e.g., transportation, education, etc., Nepal is still backward, having per capita income of only about US $ 160. In the economic field, underemployment and poverty are wide-spread. In the social field, services are poor and inadequate. Traditional social values, most of which are unfavourable to development, are still, in general, dominant in the minds of the rural people. It is quite obvious, therefore, that the scientific knowledge of the general people is quite low.

Very low literacy rate, i.e. 29%, and inadequate facilities of radio stations, radio sets, television network make the dissemination of scientific and technical information all the more difficult within Nepal. The problem is still more pronounced in the remote areas of the country.

1.2 Relevance of Science Popularization in Nepal

It would not be inappropriate to state that Nepal is underdeveloped in science and technology (S &T) sector. General

people in Nepal are still hesitant about, reluctant to and resistant of changing their outdated values, customs, tradition and technologies. Such situation is naturally intolerable, unjustifiable and, more clearly, inhumane. In the words of Meadows "Popularization becomes necessary when an area of knowledge moves into the hands of limited number of specialists and its content then becomes incomprehensible to others.[1/]

Nepal can benefit, precisely in the following ways, By popularizing scientific and technical information among its people:

1. The agricultural sector on which majority of the people depend is very backward. One basic reason is that the technology of cultivation is traditional, and is unfit to meet the demands of the ever growing population. If the scientific knowledge (related with agro-biology, agro-botany) needed for better farming is disseminated, it may to some extent help raise the land and labour/productivities in the agricultural sector of the country.

2. Appropriate scientific and technological information and knowledge may help the people to widen their economic horizon, the sphere of economic activities and engage them in activities other than agriculture.

1/ Jack Meadows " The Growth of Science Popularization: A Historical Sketch Impact of Science on Society, No.14. UNESCO, Paris and London, 1966; p.341.

3. The incidences of disease and malnutrition are high in the country, leading subsequently to high death rate, high infant mortality rate which are also hindrances to motivating the people to control their fertility. Dissemination of appropriate S & T information may help a lot in adopting preventive measures and developing better nutrition habits among the people.

4. Scientific knowledge may help develop a conducive atmosphere in rural areas and maintain a balanced natural and ecological environment without which the rural lives are exposed to natural calamities such as landslides, floods, etc.

5. Superstitious beliefs are rampant in rural areas of Nepal. Some of these beliefs are completely detrimental to rapid socio-economic development. The minds of the people are mostly filled with fears and unnecessary suspicions due to such beliefs, making them less enterprising, less responsive to new ideas and innovations. For instance, if one or both the parents die after the birth of a child, he or she is looked

down upon by most of the people thinking that he or she is the sign of some misfortune. Scientific knowledge and reasonings may effectively combat with such beliefs in the rural areas.

6. Consciousness for achieving higher educational status and aspirations is low in Nepal. Widespread dissemination of scientific and technical knowledge may bring awareness of their potential capabilities in harnessing available resources and achieving higher educational and technical status for their own development and that of their children.

1.3 Facilities Available for Science Popularization

Before examining the existing facilities for science popularization, it would be better to draw distinction between science education and science popularization. Science education, precisely, means a formal education programme in which science subject is included, whereas, science popularization may mean non-formal form of science education in which newspapers, magazines, science features, radio and television network and science fairs play crucial role. But it should be made clear that science education and science popularization support each other and, as such, have wide overlapping upon each other. Thus it would be better, first, to discuss some of the facilities available for science education.

The schools spread all over the kingdom (but not uniformly) can be regarded as facilities for science education. At the end of the last decade, in 1980, there were 10,130 primary schools, 3501 lower secondary schools and 785 high schools or secondary schools. In 1982, their number increased to 10912, 2964, and 1031 respectively. Science has been the compulsory subject in lower secondary and secondary schools. It should, however, be pointed out that, though, there is provision for science teachers' post in almost all the high and middle schools, most of them, in remote areas, seldom have qualified, trained and well motivated science teachers. In addition to this, most of the schools do not have science laboratories, which is a must for better science education.

Besides, Tribhuvan University also imparts science education through its campuses. There are at present about 39 science and technology-related campuses, operating in various parts of the country for imparting science education. But these science campuses also lack good scientific equipments and apparatuses. Lack of budgetary provisions and appropriate manpower often hinders the smooth functioning of such science related campuses.

The other facilities for science popularization, are newspapers magazines, newsletters, periodicals, Radio Nepal, and Nepal Television. But except radio Nepal(to some extent), the other media of popularization do not reach the large mass who are illiterate. Besides, the circulation of printed media is severely

limited to Kathmandu valley and few other urban pockets.

In addition, the newspapers and magazines, unless issued specifically for science popularization, do not usually print science news, views and features. It has also been found that the broadcast of radio Nepal is not well understood by a significant number of people specially in remote mountain regions and terai regions of the country where the local language is different from the national language, that is Nepali.[2/] Thus, whatever facilities are available for science popularization they are indeed, poor, inadequate, inefficient and, therefore, have a limited impact on people.

Institutions related to science and technology also play a critical role on their popularization in the country. Some of the existing institutions contributing to science popularization are Royal Nepal Academy of Science and Technology (RONAST) (estd. in Dec 5, 1982), National Council for Science and Technology (NCST) (estd. in Jan 20,1976), Research Centre for Applied Science and Technology(RECAST) under Tribhuvan University (estd. Sept,1977). But these institutions face constraints in their operation. Some of them have inadequate financial and material resources, and manpower.

2/ See Food and Agricultural Organization of the United Nations, Farm Broadcasting in Nepal, Report of the Research conducted by Development Research and Communications Group(DRCG) Rome 1984, PP 20-70 (more specifically P.34) for detail.

1.4 Government Policy for Science Popularization in the Seventh Plan

The need of and strategy for science popularization was not made clear till the formulation of Fifth Five Year Plan. The Sixth Five Year Plan has made some policy provision for science popularization. Some institutional efforts[3/] were made towards science popularization during the plan period.

The present Seventh Plan is more clear regarding science popularization because of its objective of increasing the use of 'Science & Technology (S & T) by informing the common people about its importance and usefulness. Almost all of its policy statements regarding S & T have, direct or indirect, implications for science popularization in the country. The policies in this respect are as follows:

1. Strengthening the available S & T infrastructure in accordance with the need of their maximal mobilization.
2. Achieving maximum productivity from available S & T manpower by providing them with scholarships according to the need.
3. Coordinating between the HMG and Tribhuvan University Institutions which are related to S & T.
4. Arranging technology transfer by selecting and evaluating technologies needed for different sectors.
5. Strengthening the available service system and providing equipment repair service and the information service needed for implementing Research and Development (R & D) for fulfilling long term and short term national necessities.

3/ For detail see National Planning Commission The Seventh Plan (1985-90) Kathmandu, p.199.

6. Preparing manpower in new sectors by qualitative and quantitative augmentation of scientists and technologists as required.

7. Strengthening scientific capacity and increasing the opportunities for exchanging scientific information and knowledge.

8. Using and developing appropriate technologies which help mobilize local skill resources and available labour force, and harnessing the natural endowments.

9. Informing the ordinary people about the importance of the role S & T may play for them.

10. Increasing international cooperation and participation in the field of S & T.

The ninth policy statement above is directly related to science and technology popularization, whereas, all other policy statements have indirect bearing upon it. Regarding the strategies which are most closely associated with science popularization are that they will be implemented through exhibition, publications, talk programmes, radio programmes, essay competitions etc. as stated in the plan document. It further mentioned that the professional associations related to such popularization measures would be encouraged by providing them with necessary supports. The arrangement of seminar workshops among scientists and technologists and the promotion of S & T publications have been included in the major strategies for science popularization.

1.5 Hindrances to the Science Popularization in the Country

The discussion presented in the preceding sections reveal some of the hindrances to the popularization of science in the country. Nevertheless, it would be better to specify the hindrances to its popularization as follows:

i. Harsh topography hindered the smooth flow of popularization materials, such as, magazines and books.

ii. Isolated settlements, coupled with harsh topography, made the transportation and communication a costly affair, thereby, adversely affecting the science popularization.

iii. The traditional attitudes and values prevailing in rural areas, even at present, pose a major hindrance to the popularization of science.

iv. Low economic capacities in rural areas are also a major hindrance to science popularization. Most of the people are not even in a position to buy a radio set, an effective means of mass communication.

v. The inadequate facilities of manpower, equipments and financial resources in the units, agencies and institutions are also the hindrances to S & T popularization.

1.6 Main Features of Science Popularization Project(SPP)

Science Popularization Project has been implemented since July 1985 under the agreement between Royal Nepal Academy of Science and Technology (RONAST) and International Development Research Centre(IDRC) of Canada. The overall objective of the

project is to plan and implement a pilot science popularization programme for Nepal that would be conducted in collaboration with the press and radio of the country.

Under the project a fortnightly science feature "Bigyan Lekh Mala" containing science and technology related information and articles is being published. Besides, a science and technology programme is being broadcast through Radio Nepal each Saturday from 7.30 A.M. to 7.45 A.M. Furthermore, the project has been assisting Radio Nepal to broadcast Rural Science and Technology programme each Sunday from 6.50 P.M. to 7.00 P.M. Most recently it has been telecasting science and technology related programmes in collaboration with Nepal Television.

1.7 Need for the Evaluation of SPP

It has almost been two years since the initiation of the science popularization project (SPP). It may not be an easy task to implement such a project in the country like Nepal where information media are not effective enough in disseminating the science and technology information, and the people in general take less interest in scientific and technical knowledge.

SPP has been implemented as a pilot project. Certain operational procedures may need an amendment and improvement to continue the science popularization activities in future. It is necessary to understand the extent to which the people at the grass root level have been benefitted from the implementation of the project.

1.8 Objectives of the Evaluation Study

The major objectives of the evaluation study are as follows:

1. To examine the programmes and their components in details for fulfilling the overall objectives of the project (SPP).
2. To suggest recommendations for better implementation of such projects in the future.

1.9 Methodology of the Study

The methodology for the evaluation study comprises the following components:

1. Collection of Secondary Data

The SPP unit of RONAST has been keeping records and data in order to facilitate the evaluation of the project. Most of the secondary data were collected from RONAST.

2. Collection of Primary Data

(a) The collection of primary data complementary to secondary data is needed for the evaluation of RONAST science feature, and science and technology (S & T) broadcast over Radio Nepal. Primary data needed for evaluating the RONAST science feature "Bigyan Lekhmala" have been collected from the twelve leading newspapers in Kathmandu valley and the six others outside the Kathmandu Valley.

(b) Three rural settlements, one district with less response to S & T broadcast and two districts with high response to S & T broadcast have been selected for collecting primary data to evaluate S & T broadcast. Dhunche village panchayat of Rasuwa district

in the central mountain region, Sunsari(the terai district) and Dhankuta(the hill district)from the Eastern Development Region have been selected for collecting such primary data. The basic aim of collecting primary data is to know the general accessibility of radio sets and radio broadcast to rural communities and the general nature of their response to S & T broadcast of SPP by Radio Nepal. Altogether 43 questionnaires - 23 in Dhunche 12 in Dharan for Sunsari district and 8 in Dhankuta were administered during the evaluation field surveys.

The evaluation study has also used some of the primary data collected by project staff in the past by conducting questionnaire survey. The questionnaire used by the evaluation team is more or less similar to the one used by SPP in the past.

3. Interview with Concerned Personnel

In depth interviews have been taken with the personnel and staff involved in SPP to clearly understand its arrangement and management style. Some key personnels and informants like programme officers of Radio Nepal have also been interviewed to know their reactions to SPP and their future vision (problems and prospects) regarding it.

4. Analysis and Interpretation of Data

The data so collected have been analysed with the help of appropriate tables revealing the reactions of the news publishers and attitudes of the people to S & T broadcast. The basic indicators for the analysis and interpretation of data are as follows:

a. The extent to which print media covered the news and information related to science and technology.

b. The extent of the print media in using the features and information published by RONAST science feature as a source material.

c. The extent of response to S & T broadcast of SPP over Radio Nepal by the people in various regions of the country.

1.10 Limitations of the Evaluation Study

1. The evaluation study did not examine the detailed impact of the SPP. For impact study, more detailed and in-depth study may be needed raising questions such as how far people have changed their life style, increased their stock of scientific knowledge, etc.

2. In case of the evaluation of science popularization through print media, only the newspaper publisher had been contacted. The views and reactions of newspaper and magazine readers were not collected as they might require much effort for which more time and budget would be required.

3. The newspapers and magazines published in English were not considered for evaluation because majority of the people in rural Nepal do not understand and can not understand English.

4. Evaluation field surveys were limited to relatively accessible areas keeping in view of the limited time available.

CHAPTER II

EVALUATION OF SCIENCE FEATURE PROGRAMME

2.1 Introduction

Science popularization project (SPP) has been publishing a fortnightly science feature- " Vigyan Lekhmala" since April 10,1986. The main objective of this programme is to provide the background material - source material- for the newspapers, journals,magazines etc.

The science feature "Vigyan Lekhmala" contains articles written by scientists, technicians and those interested in S & T. Besides, the features includes recent scientific information published in newspapers, journals,magazines abroad, e.g. Science Today, Depth-news, etc.
The feature covers a wide range of areas e.g. agriculture, physics, chemistry, technology, medical science,and so on.

2.2 Coverage of Science and Technology by Print Media

The coverage of S & T by print media referred here relates to the frequency of publishing information by newspapers, because the analysis of the sector-wise coverage e.g. health, physics, chemistry is not so relevant in context of the Nepalese newspapers.

It has been found by a general survey of libraries in Kathmandu Valley that only 6.2 percent of newspapers published in Nepal have S & T information on regular basis by providing a definite column space (See Table 1). Daily newspapers seemed

to have relatively more S & T information as 9.1% of them have been printing S & T materials regularly in comparision to that of 5.8% of weekly newspapers.

Table No.1

TYPE OF NEWSPAPERS PUBLISHING S & T INFORMATION

Type of Newspapers	With very few S & T Information	Relatively more S & T Information	Regularly printing S & T Information	Total
Daily	8(72.7)	2(18.2)	1(9.1)	11(100)
Weekly	38(73.1)	11(21.1)	3(5.8)	52(100)
Fortmightly	0	1(100)	0	1(100)
Total	46(71.9)	14(21.9)	4(6.2)	64(100)

Source: Library Survey in Kathmandu between May-June, 1986.
Note: Figure in parentheses indicate respective row totals.

It has also been revealed that 21.9 percent of the newspapers have relatively more S & T information but not regularly.

Though the frequency of publishing S & T features is still low in Nepal, there seems to have been substantial increase in such frequencies since the beginning phase of science feature (15th Dec, 1985 to 16 June,1986). According to SPP records, the total frequencies in the former period (15th Dec 1985 to June 16,1986) were 206 compared to that of 445 in the latter (15th Dec 1986 to 16th June 1987) (See Table 2).

There has also been an increasing use of the science feature in borrowing informations of SPP by newspaper print media. The following Table 2 shows this trend.

Table No.2

INFORMATION USED BY PRINT-MEDIA FROM SCIENCE FEATURE, OF SPP. IN DIFFERENT TIME PERIODS

Time Periods	Dec 15, 1985 to June 15, 1986	June 16 1986 to Dec 15, 1986	Dec 16 1986 to June 15, 1987	June 16 1987 to Aug 15, 1987	Total
Frequencies of publishing S & T Feature articles in Print Media	206 (100%)	203 (74.4)	237 (53.3)	76 (51.4)	722 (67.4)
Frequencies of publishing S & T feature articles borrowed from RONAST Science Feature of SPP.	-	70 (25.6)	208 (46.7)	72 (48.6)	350 (32.6)
Total Frequencies	206 (100)	273 (100)	445 (100)	148 (100)	1072 (100)
Avarage Frequencies /Month	34	46	74	74	54

Source: SPP record File, RONAST.

The figures in the parentheses are percentages corresponding to the figures in the third row.

Between 16 June, 1986 and 15 Dec, 1986, the newspaper media used the science feature 70 times for printing S & T information which is 25.6% of total frequency of 273 in publishing such information. This figure seems to have increased to 208(46.7%) during the subsequent period under review (See Table 2). Another interesting feature revealed by Table 2 is that there have also been increment in the monthly average frequencies of S & T information printing from 34 in the beginning to 46 in the second and 74 in the third and fourth periods under review.

2.3 Views of Newspaper Publishers on Science Feature, SPP

A brief questionnaire survey of 18 newspaper publishers have been made to understand their role in S & T information dissemination and their reaction to SPP science feature. The questionnaire has been given in Annex 1 and the list of the newspapers covered in the survey is given in Annex 2.

All the newspaper publishers seemed to have given due importance to S& T information dissemination by providing certain space. But they differed among themselves in degrees of importance they gave to the dissemination of S & T information. The newspapers which publish S & T information in each and every issue by providing a definite column are regarded as the best for the study purpose in this respect. Seven out of these 18 (38.3%) were in the above category and were all weekly newspapers. The newspapers providing definite space for S & T information, though irregularly, also were seven in number (6 dailies and one weekly).(38.8).

Table No.3

VIEWS OF NEWSPAPER PUBLISHERS ON DIFFERENT COMPONENTS OF SCIENCE FEATURE OF SPP

Components of Science Feature	Total No.of Respondents (publishers)	Views			Comments
		No Comment	Satisfactory	Just O.K.	Unsatisfactory and reasons
Content	18	4	4	7	1. Information borrowed more from outside 1. Lack of information on new equipments and technology 1. Lack of information useful for daily life
Presentation	18	3	6	6	2. Presentation is unnecessarily lengthy 1. It is complicated
Language	18	3	3	6	2. difficult to understand 1. English is used more than necessary 3. Language should be more suited to Nepalese readers.

Source: Field Survey.

Most of the newspaper (i.e. 12 newspapers out of 18) covered within the questionnaire study had been using both the science feature and external sources e.g. foreign newspapers and journal. Two of them had solely depended on the science feature for printing the S & T information, whereas four newspapers relied only on outside sources for S & T information dissemination besides borrowing information, to some extent, from the science feature. This shows that the utilization of science feature by newspaper media is fairly encouraging, although more effort is needed to upgrade the quality of the science feature, and for wider distribution of science feature. At present the feature has been distributed to 31 newspaper publishers, 4 monthly magazine publishers and 19 institutions within the Kathmandu valley. Besides, the feature has been sent to 20 newspaper publishers outside Kathmandu valley.

The views of the newspaper publishers regarding the content, presentation and language of the feature, do not present serious complaints except that the articles should not be unnecessarily long and that they should be easy to understand by the common people, precise and to the point (See Table 3). Regarding the impact of the S & T information on the sales of newspapers only 3 publishers reported some increment.

2.4 Content Analysis of the Science Feature

The science feature has disseminated S & T information under 122 different titles beginning from the first issue on 10th April 1986 to the 20th issue on 28th April 1987. It showed that each

issue,on an average,covered6-7 titles (ranging from minimum 1 to maximum 10). All articles, except the two in English, were in Nepali.

For the content analysis, all information in different titles on the basis of the level of comprehensibility and usefulness to daily life is categorised into four as follows:

1. Articles which will be easily understood by ordinary but literate people, i.e. people below highschool graduation- Category-A.
2. Articles understandable only by people who have some science background- Category-B.
3. Articles understandable only by people with high scientific background, i.e. people with diploma or degree with science as compulsory subject - Category C.
4. Information in the form of news, general knowledge- Category-D.

The articles are further classified , as shown in the Table below, on the basis of the nature of the area or topics covered, e.g., agriculture, physics, biology, etc.

It seems from Table 4 that most of the feature articles have been concentrated on Category B in all the areas. (40% to 70%). Again most of the feature articles are found to have dealt (26.2%) with human physiology, hygiene and health. Excluding general knowledge and news-type of items, environment related and medical science related ones cover around 11% each of the total information. It is striking that agriculture which is the primary occupation of the Nepalese population constitutes only 5.7 percent of total news feature.

Table No.4

CONTENT AND AREAS OF THE FEATURES BY VARIOUS CATEGORIES IN THE SCIENCE FEATURE

Category of Science Features	Environment its Preservation & Pollution Control	Biology Botany & Zoology	Physics and Chemistry	Space Science & Astronomy	Human Physiology and Health	Medical Science & Medicine Surgical Operations	Nutrition	Energy	New Equipment and Technology	Agriculture	Gen. Knowledge news information miscellaneous	Total
Category A	[11.5] 3 (21.4)	[7.7] 2 (22.2)	-	-	[50] 13 (40.6)	[3.8] 7 (7.1)	[11.5] 3 (100)	[3.8] 7 (50)	[3.8] 1 (7.7)	[7.7] 2 (28.6)	-	[100] 26 (21.3)
Category B	[16.9] 10 (71.4)	[8.5] 5 (55.6)	[3.4] 2 (66.7)	[5.1] 3 (75)	[23.7] 14 (43.8)	[18.6] 11 (78.5)	0	0	[16.9] 10 (76.9)	[6.8] 4 (57.1)	-	[100] 59 (48.4)
Category C	[6.3] 1 (7.1)	[12.6] 2 (22.2)	[6.3] 1 (33.3)	[6.3] 1 (25)	[31.3] 5 (15.6)	[12.6] 2 (14.3)	0	[6.3] 1 (50)	[12.6] 2 (15.4)	[6.3] 1 (14.3)	-	[100] 16 (13.1)
Category D	-	-	-	-	-	-	-	-	-	-	[100] 21 (100)	[100] 21 (17.2)
Total	[11.5] 14 (100)	[7.4] 9 (100)	[2.5] 3	[3.3] 4 (100)	[26.2] 32 (100)	[11.5] 14 (100)	[2.5] 3 (100)	[1.6] 2 (100)	[10.7] 13 (100)	[5.7] 7 (100)	[17.2] 21 (100)	[100] 122 (100)

Figures in the box paranthesces [ ] are percentagages corresponding to row totals and figures in the small parantheses ( ) are percentages corresponding to column totals.

The general impression of the science feature content analysis reveals that the feature attempted to cover a wide range of area, without systematic planning and segmentation which would have made the feature more attractive and effective.

Out of the 122 titles which the science feature presented, 23 articles (18.8%) were written by Nepalese specialists involved in related fields. It shows that each RONAST science feature contains one such article on an average.

2.5 Some Problems Related to the Science Feature of SPP

There have been some problems confronted within the publication of science features. These problems are as follows:

1. Lack of Regularity: The science feature has not been so regular (i.e. not been able to publish in due time). In fact, within the period under review (1986-4-10 to 1987-4-28) about 20 issues were brought out instead of 24. But keeping in view of the complications being faced, for example, the inadequacy of materials, and the personnel even this number is not an insignificant achievement.

2. Lack of Materials: In Nepal most of the scientists and technicians are not interested in writing articles and even if they write them they are usually lengthy and not easily understandable by the common people. On the other hand, those writers who can write articles are not interested in writing on S & T related topics. On the other side,

the journalists so far available in Nepal are either not interested in S & T or have less skill in writing S & T related feature. One important explanation for lack of articles is the low rate of remuneration (which is Rs 500 per article). Such remuneration seemed not enough to encourage scientists, technicians and doctors to write and publish standard articles in Nepal. For these reasons, the science feature publication has to depend much on outside sources, foreign journals, magazines etc.

3. Lack of Personnel: The number of personnels fully engaged in SPP for the Science Feature is at present only three or four which is not sufficient to publish fully qualified and regular science features. The personnel engaged in collecting articles have to contact, several times, the writers to get the articles. Moreover, the personnel engaged in S& T sometimes have to do other institutional work according to the demand of the special circumstances.

Besides, there are other problems which are not less serious, e.g., understanding gap between SPP and newspaper publishers, difficulty to express S & T terms in Nepali, lack of appropriate tools and equipments to make the feature attractive, lack of proper planning and arrangements etc.

CHAPTER III

EVALUATION OF SCIENCE AND TECHNOLOGY RADIO PROGRAMME

3.1 Introduction

The Science Popularization Project (SPP) began broadcasting it's science and technology program on December 30th, 1985. The 15 minute program can be heard from 7.30 to 7.45 every saturday morning. An annual lump sum of Rs 16,000 is paid to Radio Nepal in accordance with an agreement signed on Nov 30, 1985(Mangsir 14, 2042 B.S.). In return for the payment, Radio Nepal provides all the studio equipments and facilities needed by SPP for its broadcast.

The program is made up of a number of different components. Each of the six components has a name with which the listeners can identify. Science Today includes commentary on various recent scientific topics and events. Interviews is made up of interviews conducted with both Nepali and foreign scientific experts. Do you know ? contains various items of general knowledge about science and technology. Your Enquiries is a section in which the listeners' questions (submitted by letter) are presented and answered. Now it is your turn is a quiz in which three questions are asked, and the listeners are invited to respond. The last component of the programme is titled "Chinari", which means introduction in Nepali. In this section information about renowned scientists and inventors is presented.

In addition to this programme, Radio Nepal also broadcasts a special science and technology program for rural areas, with

the support of SPP. This programme is aired on Sunday evenings, from 6.50 to 7.00.

3.2 Review of Current Situation in Science and Technology (S & T) Broadcast

Radio Nepal is currently broadcasting 14 programs which are in some way related to science and technology. Except the one sponsored by SPP and the one assisted by RONAST, all others programmes are only remotely related to science and technology (see Annex 3). Of the 14 programs, three are produced by Radio Nepal alone, and the rest broadcasted by Radio Nepal in conjunction with various other institutions, including RONAST.

The science and technology programme is funded in full by SPP, while, the rural technology program is sponsored by Radio Nepal. SPP's activities in this area are not limited to the actual production of the program. SPP is also currently assisting various broadcast-related industries to popularize science and technology by providing training sessions. Comparision between Annexes 3 and 4 of this report shows that not all the institutions directly involved in broadcasting participated in training, and that some of the participants of the training sessions are not directly involved with broadcasting. In this way, it can be seen that SPP's efforts at popularizing science and technology are not strictly limited in their scope.

Radio Nepal is the only broadcasting medium currently available and viable in Nepal. Broadcasting science and technology programs on Radio Nepal presents a number of problems. As there is no other choice at the moment, these problems need to be addressed. Basically, these problems are related to the limited nature of Radio Nepal, and cannot be addressed directly by SPP.

There is a dearth of scriptwriters who are capable of writing about scientific or technological subjects. This problem is currently being addressed indirectly by SPP through its training workshop. Information to be included in the scripts, however, is hard to collect from various parts of the country. This problem can only be rectified by the development of Nepal's transport and communication sector. The more remote areas of Nepal rely to a great extent on shortwave transmissions, which are unreliable. The more common mediumwave transmissions are more reliable, but they don't reach remote areas. While this problem is certainly high on the agenda of Radio Nepal, it can be seen that Radio Nepal can not afford to give high priority to science and technology programs.

Concerned officials of the Radio Nepal Staff report that there is a good possibility that science programs can be expanded in the near future. Extension and intensification of these programs, however, depends upon the support of funding agencies.

Financial support is the main obstacle to lenghthening broadcast time or increasing frequency. Radio Nepal has already shown its interest in science Programs by initiating Science and Technology broadcast early in 1977, [illegible]. Without further financial assistance, however, Radio Nepal is unwilling to devote more time or energy to science or technology programming.

Within the present means, science and technology programming is limited in a number of ways. The need for more appropriate and attractive information for inclusion in the program has been pointed out by concerned staff members of Radio Nepal. In addition it was pointed out that the short duration of the program (15 minutes) in conjunction with the lack of a detailed schedule prepared sufficiently ahead of time detracts from the efficacy of the program. Further, there seems to be no listeners' clubs to boost interest in the somewhat complex format.

3.3 Accessibility to Radio and S & T Broadcast of SPP

The basis for evaluation of SPP was compiled in part by the project staff themselves. In order to monitor response and listening patterns, eight field surveys were conducted in different parts of the country. These surveys were also intended to guage how accessible science and technology broadcasts were to the population. Obviously, there can be no response to a radio program if it is not heard. Thus, this issue was dealt with first by the evaluation team.

Dhunche Panchayat, the district headquarter of Rasuwa in mountain area of the Central Development Region, was an area selected for this survey. As it will be seen later (see Tables 5 and 8), this area was found to have a very low response to the SPP broadcast. The majority of the households in the survey area are Tamang: an ethnic group which has its own language. Although the Tamang language is often used in the home, most of the people in this area could use Nepali; enough to understand the SPP program.

Of the 110 households in Dhunche area 31.8% (35) were reported to own radios according to a local representative. This figure may seem low. But in comparision to neighbouring panchayats, Dhunche Panchayat has relatively more radios. In Yarsa Panchayat, only 10% of the households have radios, and in Chilime Panchayat, the Pradhan Pancha could not think of a single household which could boast of having a radio. Thus it can be seen that accessibility to the radio programs is a serious hindrance to the popularization of science and technology in the rural areas.

A survey of Rasuwa high school students revealed that 53.6% of the 28 students there have radios in their homes. Of the 15 who had radios, only 6 said that they listened to the science and technology program. Similarly, in the local literacy group for adults, 43.7% of the 16 members reported having radios in their homes. Only three of these said that they sometimes listen to the SPP program.

In a random sample of 15 households of Dhunche, only 7(46.7%) said that they had a radio. One family member of one of the households with a radio claimed to be a regular listener to the science and technology program. Except the seven households with radios, all reported that they rarely listen to the program.

The second and third areas selected for the survey were the rural areas around Dharan and Dhankuta. Dharan in Sunsari District and Dhankuta in Dhankuta District, both are small towns as district headquarters. The former is in Terai plain and latter in hills of the Eastern Development Region.

A survey was conducted at Gokundeshwor High School, in Dhankuta. It was discovered that out of 191 students, 163(85.3%) students had radios. Of them, 43 students (22.5%)used to listen the science and technology program, but not regularly. One student (0.6%) used to listen the program regularly, and 4 students(2.4%) used to listen whenever they could get access to a radio at the proper time.

Radio ownership is highest in Dharan with 80% of surveyed households having radio sets compared to 66.7 percent in Dhankuta and 46.7 percent in Dhunche. Familiarity with S & T Broadcast of SPP was highest in Dhankuta followed by Dharan and then after by Dhunche(Table No.5). This may to some extent explain the relatively low response to SPP from the mountain regions. The figures in the Table No.5 however is not indicative of the general situation of remote areas where these indicators may be far lower than these figures, since the surveyed areas are relatively developed and accessible in comparision to other rural areas of the country.

Table No.5

RADIO OWNERSHIP AND FAMILIARITY WITH S & T BROADCAST OF SPP

	No.of Household Contacted	No. of Household with Radio Sets	No. of Household without Radio Sets	No. of Households Somehow familiar with S &T Broadcast
Dhunche (Mountain)	15(100)	7(46.7)	8(53.3)	5(33.3)
Dhankuta (hills)	12(100)	8(66.7)	4(33.3)	5(41.7)
Dharan (Terai)	20(100)	16(80.0)	4(20.0)	8(40.0)
Total	47(100)	31(66.0)	16(34.0)	18(38.3)

Source: Field Survey

Figures in the parentheses denote the percentage to corresponding to Total No. of household contacted.

In an interview with a local leader in Dharan it was learned that while radios were common in the area around Dharan he guessed 90% of the population have access to radios), the science and technology broadcast programme, however, had not been popular.

3.4 Characteristics of Listeners of the S & T Broadcast

It is important to establish what types of people do listen to science and technology programs. Therefore, those who said that they listen to the SPP program have been analyzed in terms of sex, age, occupation and educational background.

Out of 105 listeners, 10 were female. Though this skew may represent the bias of the survey team, it is probable that more men than women listen to the science and technology program. This probability is supported by the fact that more letters are received in response to the question and answer component from men than from women. In the period from mid-May to mid-June (Jestha) in 1987, only 3.7% of the letters received were from women.

It was found that more young people- those between the ages of 16 and 25- listen to the program than old people. During household surveys, it was noted that older family members referred the questions to younger family members. When they were asked why they did that, the older people mostly said that they had less interest in science and technology than the younger generation.

In terms of occupation, it was found that students were the most active listeners to SPP's programme. As it can be seen in Table No.6, there were almost twice as many student listeners as any other major occupational group. Forty-four of the 105 respondents were students, while the second largest group was found to be farmers, who numbered 24.

Table No.6

OCCUPATION-WISE DISTRIBUTION OF LISTENER RESPONDENTS

Occupations	Number of Listeners Contacted (%)
Agriculture	24(22.8)
Business	14(13.3)
Teacher	12(11.4)
Students	44(41.9)
Service Holder	6(5.7)
Housewife	1(.9)
Not mentioned	4(3.8)
	105(100)

Source: Field Surveys.

In Table 7 the educational background of SPP program listeners is given. 78 of the 105 respondents regarded themselves as literate, while the remaining 15 described themselves as either illiterate or "just literate". The indication of these findings is certainly that SPP listeners are mostly educated.(Table No.7).

Table No.7
EDUCATIONAL BACKGROUND OF LISTENERS CONTACTED

Category of Educational Level	Number(%)
Illiterate	6(5.7)
Just Literate	9(8.6)
Below Matriculation	38(36.12)
Above Matriculation	40(38.1)
No response	12(11.4)
	105(100)

Source: Field Survey.

3.5 Listening Pattern

The sample for the listners survey was chosen purposively. Only those who expressed interest in listening to the S & T programme even if they did not have their own radio and those who owned radios were questioned. Any one who expressed no interest whatsoever in the program and without a radio was excluded from the survey sample (see Annex 5). In rural areas, the number of excluded individuals is considerable. This was done in order to prevent ownership patterns from appearing as listening patterns.

In a survey of 105 selected respondents, questions concerning how often and to which programs people listened were asked. While certain patterns emerged in the course of analysis, the small sample might have been imperfectly random and, therefore, any correlations must be considered loose.

It can be seen in Table 8 that most of those who listened to the SPP programme first became acquainted with the programme by causual tuning. This indicates that one way to increase SPP's audience is to increase the number of radios available to casual listeners.

The highest proportion of regular listeners was found in Dhankuta, with 62.5%. The lowest proportion was found in Dhunche, with 8.7%. This spread is repeated in terms of regular listeners to the radio. That is to say that the highest proportion of regular listeners to the radio in general was also found in Dhankuta, with 62.5%, and the lowest in Dhunche, with 30.4%. It is interesting that despite the fact that Dharan with 100% listeners having radio have less tendency (25.0%) to hear the S & T program regularly. The situation of Dhankuta in hill region is quite encouraging in this respect. (i.e. relatively more regular listerners). It

Table No.8
RADIO LISTENING PATTERNS

Type of Response	Dhunche (Rasuwa District)	Dharan (Sunsari District)	Dhankuta (Dhankuta District)	Various regions covered by previous field surveys	Total
Number of Respondents	(23)	(12)	(8)	(62)	(105)
1. Do you have a radio					
Yes	19(82.6)	12(100%)	6(75%)	-	47(86.1%)
No.	4	-	2		6
2. How often do you listen radio ?					
Daily:Regularly	7(30.4)	7(38.3)	5(62.5)	24(38.7)	43(40.9)
Frequently	11(47.8)	4(33.3)	2(25.0)	23(37.1)	40(38.1)
Occasionally	5(21.8)	1(8.3)	21(12.5)	12(19.4)	12(11.4)
3. How often do you listen to the Science program?					
Regularly	2(8.7)	3(25%)	5(62.5)	54(87.1)	64(61.0)
Frequently	12(52.2)	9(75%)	2(25.0)	8(12.9)	31(29.5)
Occasionally	6(26.1)	-	1(12.5)	-	7(6.7)
Not at all	3(13.0)	-	-	-	3(2.8)
4. How did you first learn about the Science program?					
By chance	20(86.9)	10(83.3)	7(87.5)	42(67.7)	79(75.2)
From a Friend		2(16.7)	0	8(12.9)	10(9.5)
From a teacher			1(12.5)	5(8.1)	6(5.7)
Other				5(8.1)	5(4.8)
Not specified	3(13.0)			2(3.2)	5(4.8)

Source: Evaluation Field Survey and previous field surveys of SPP.

can be seen that the correlation between area and regular program listening can be attributed simply to the correlation between area and general listening. This assertion is supported by the fact that the majority of SPP listeners became acquainted with the program through casual listening.

3.6 Reactions to SPP Broadcast

During the field Survey, SPP listeners were asked which components of the SPP program they liked. The most popular component was the question and answer component. Nearly 50% of the respondents said that they liked that component of the science program best. The second most popular component was found to be " Do you Know ? ", with 23 votes accounting for 21.9% of the sample. Most of the people who listen to the science program find it very useful. Although this might be taken as a matter of course, since otherwise they wouldn't listen, it is important to note that people do not listen simply for entertainment. It is also encouraging that nearly 94% of the respondents found the program useful.

Table 9 gives a detailed account how listeners respond to the program. It is clear that the question and answer component and the subject of invention are considered most useful. It is also interesting to note that the vast majority (76.7%) of the listeners pass on information from the program to others. One conclusion which can be drawn from these findings is that the content of the broadcast is appropriate.

Table No. 9

REACTION OF LISTENERS TO PROGRAM CONTENT
(TOTAL NO.OF RESPONDENTS 105) 1/

Questions & Type of Responses	Number of Responses
1. How Useful is the S & T program ?	
a. Very useful	68 (64.8)
b. Useful	31 (29.5)
c. Somewhat useful	3 (2.8)
d. Not useful	-
e. No response	3 (2.8)
2. Which Component of the programme do you like most ?	
a. Topical commentary	13 (12.4)
b. Interviews with science specialists	5 (4.8)
c. Panel discussion	4 (3.8)
d. " Now it is your turn "	11 (10.5)
e. " Do you know ?"	23 (21.9)
f. Question and Answers	50 (47.6)
g. No response	3 (2.9)
3. Which subject do you find most useful?-	
a. Health	29 (27.6)
b. Energy	5 (4.8)
c. Environment	14 (13.3)
d. Invention	46 (43.8)
e. Agriculture	17 (16.2)
f. Others	1 (1.0)
g. No response	3 (2.8)
4. Have you ever told anyone else what you learned from the program	
a. Yes	33 (76.7)
b. No	10 (23.3)

Source: Field Survey conducted by SPP staff and the evaluation team.

Notes: 1/ Include both the monitoring and evaluation surveys.

Some respondents gave more than one responses to questions 2 & 3 .

3.9 Respondents' Suggestions

One section of the questionnaire administered during the survey addressed the issue of problems and solutions. The respondents were asked whether they expect any area of scientific or technological interest to be increased or included in the SPP program. They were also asked if and what kinds of problems there were with the program's format. Finally, they were asked if they ~~think~~ had any suggestions for improvement in the program. and if the broadcast time should be changed.

It was found that the majority of the respondents had no expectation for any subject matter to get included. It is significant that given a choice of five scientific subjects, however, most of the respondents who felt some-thing, lack-ing, did not choose any one of the given subjects. This is to say that aside from health, energy, the environment, invention and agriculture, SPP listeners would like to hear about some other subject. Further clarification of this can be found in Table 10. It is interesting that 39% who had responded to the third question suggested that the time of broadcast should be increased. Likewise 33.% reacted to the fourth question in the table by stating that broadcast time should be in the evening or night.

Table No.1

PROBLEMS OF LISTENERS AND IMPROVEMENTS EXPECTED BY THEM

Questions and responses	Number of Responses (%)
1. What scientific subjects do you expect more in the program ?	
1. Health	11 (10.5%)
2. Energy	11 (10.5%)
3. The Environment	1 (1%)
4. Invention	7 (6.7%)
5. Agriculture	10 (9.5%)
6. Others (Energy, Technology, Geography, Astronomy etc.)	20 (19%)
7. None	54 (51.4%)
Total	114
2. Why can't you listen to the science program?	
1. No radio	17 (16.2%)
2. Time of broadcast inappropriate	37 (35.2%)
3. Language too difficult	1 (1%)
4. Language a little bit complicated	11 (10.5%)
5. Program is not interesting	5 (1%)
6. Reception is not clear	5 (4.8%)
7. No reason	33 (31.4%)
Total	109
3. What improvement do you think necessary in the programme?	
1. Time should be increased	41 (39%)
4. Do you think that the time of the programme should be changed?	
1. Time should be changed to evening or night.	35(33%)

Source: Field Survey

The figures in the parentheses are the percentage of the total respondents i.e. 105. The totals of the figures do not add to 105 because some respondents gave more than one response.

The fact that health, energy and agriculture are areas of development in Nepal may explain why the respondents felt a need to hear more about these subjects. The improvements indicated by these listeners reflect the same concept as was found earlier in this study: that the content of the program is appropriate. With 51.4% of the respondents satisfied with the subject matter and 35.2% not listening simply because the time of broadcast is inconvenient, it seems clear that the low number of listeners is not attributable to poor quality programming.

There was one complaint which did not appear in the previous table. Some listeners complained that questions submitted were not answered on the air. They would like to hear their own questions addressed on the radio. As we have seen, the omission of many suitable questions is related to insufficient time.

3.8 Question and Answer Programme of Jestha 2044 (Mid-May - Mid June 1987)

The question and answer component of the SPP program is the most dependent upon participation as well as being the best indicator of participation. In Table 9 it was shown that 47.6% of the respondents liked the question and answer component. The types of questions which were sent in during the period between mid-May and mid-June, 1987 were analyzed.

During the time period in question 485 letters containing one or more questions were received. The questions were type-cast according to a number of headings: biology, space and astronomy, health, earth science and geography, chemistry, physics and

miscellaneous. It was discovered that 29.7% of the letters contained questions about bilogy. The second most popular subject for questions was physics, with 105 questions accounting for 21.6% of the sample.

Table 11 provides a detailed account of the number and nature of questions asked in those 485 letters.

Table No.11
QUESTIONS ACCORDING TO SUBJECT
MID-MAY TO MID-JUNE,1987

Area	Number (%)
Biology	144(29.7)
Space and Astronomy	38(7.8)
Health	58(12.0)
Earth Science and Geography	26(5.4)
Chemistry	63(13.0)
Physics	105(21.6)
Miscellaneous	51(10.5)
Total:	485(100.00)

Source: SPP Office, RONAST.

The question and answer component was broadcast twice during the period in question. Altogether 63 questions were answered during these two broadcasts. (Table 12) Some of the questions which were submitted during the period were found to have been already answered on previous program, others were found to be inappropriate for response despite being sensible questions, and the rest were found to be insensible questions. As Table 12

shows, 63.5% of the questions which could have been answered were not addressed on the program. Only 13% of the questions were answered.

Table No.12

QUESTIONS ANSWERED ACCORDING TO ANSWERABILITY

Type of Question	Number (%)
1. Sensible questions answered on air	63 (13%)
2. Sensible questions answered previously	26 (5.4%)
3. Sensible questions left unanswered	308 (63.5%)
4. Marginal questions which were answerable but unanswered	66 (13.6%)
5. Insensible questions (unanswered)	22 (4.5%)
Total	485 (100%)

Source: SPP, files of questions and answers.

Since only 13% of the questions were answered, it seems that there is considerable room for expansion of this component of the program. With the limited time allotment, however, expansion seems impossible. If increased funding allowed for more time on the air, it would be advisable to devote more time to the question and answer period, since there is so much interest in it.

3.9 Participation of Listeners

A key element of popularization can be seen to be participation. If people are encouraged to participate in the program, they are bound to take a greater interest in it and its message. In this context, the number of letters received in connection with the program has been considered an indicator of the popularity of the program. The level and nature of participation can be determined according to not only the content of the letters, but the areas from which they originated (Table 13).

Table No. 13

NUMBERS AND PROPORTION OF LISTENERS LETTERS WITH SCIENTIFIC QUERRIES RECEIVED FROM DIFFERENT PARTS OF THE COUNTRY BETWEEN FEB 15 1986 TO JUNE 15 1987

Development Regions / Ecological Regions	Far-Western	Mid-Western	Western	Central	Eastern	Total
Mountain	3 (.06)	2(.04)	0	63(1.37)	66(1.43)	134(2.91)
Hill	7 (.15)	83(1.8)	934(20.3)	281(6.11)	228(4.95)	1533(33.32)
Terai	9 (.19)	63(1.37)	126(2.73)	225(4.89)	399(8.67)	822(17.87)
Kathmandu Valley			-	2112(45.9)	-	2112(45.9)
Total	19 (.41)	148(3.22)	1060(23.03)	2681(58.27)	693(15.06)	4601(100)

Source: SPP records, RONAST.

Notes:
1. Figures in the parentheses represents percentage figures corresponding to the Grant Total (4601)
2. The letters which did not have clear address of the correspondents had not been included in the table.

A total of 4601 letters (excluding letters without address) were received between mid-January 1985 and mid-June of 1987(Magh 2042 to Jestha 2044 B.S.). Almost all of the letters contained questions related to science. The program advertises a reward for the best question. The number of letters received from different parts of the country varied greatly (Table No.13)

The Table 13 indicated that Hilly areas (33.32%) among the ecological regions and Central Region among the development regions (58.27%) have the highest responses to the S & T broadcast of SPP. The response level, in terms of the proportion letters to SPP, of the mountain region (2.9%), Far Western Development Region (0.41%) and Mid-Western Development Region (3.22%) seemed to be exceedingly poor. The number of letters from Mountain Regions of Far-Western, Mid-Western and Western Development Region represents an insignificant portion of the total letters (0 to 0.06%)

3.10 Response to Radio Quiz

Each month three questions about scientific subjects are asked over the radio as a part of the SPP broadcast. The questions are such that people who listen regularly are favoured. Correct answers to the questions are rewarded with small prizes such as a solar calculator, a pen, or a general knowledge book. The number of responses received to the radio quiz varies greatly over time. In Table it can be seen that Paush(1987) is the most popular month for replying to the quiz, followed by Kartik(1986)and Shrawan(1987).

Table No.14

NUMBER OF RESPONSE LETTERS TO THE RADIO QUIZ COLUMN OF S &T BROADCAST OF SPP BETWEEN MID APRIL 1986 TO MID AUGUST 1987

Time Period	No. of Letters
Mid April - Mid May 1986 (Baisakh)	8
Mid May - Mid June 1986(Jestha)	0
Mid June - Mid July 1986(Ashad)	15
Mid July - Mid August 1986(Shrawan)	5
Mid August- Mid September 1986(Bhadra)	3
Mid September-Mid October 1986(Ashwin)	24
Mid October - Mid November 1986(Kartik)	83
Mid November- Mid December 1986(Mangsir)	7
Mid December- Mid January 1987(Poush)	125
Mid January - Mid February 1987(Magh)	61
Mid February- Mid March 1987(Falgun)	24
Mid March - Mid April 1987(Chaitra)	11
Mid April - Mid May 1987(Baisakh)	18
Mid May - Mid June 1987(Jestha)	43
Mid June - Mid July1987 (Ashad)	32
Mid July - Mid August 1987(Shrawan)	71

Source = SPP records, RONAST.

The distribution of responses also varied considerably according to place of origin. The following table; (Table 15) shows that the vast majority of responses originated in the Kathmandu Valley. While 59.5% of the letters came from the Kathmandu Valley, 13.5% came from the western hill regions. Third in line is the eastern Terai, from which 14.1% of the responses came. It is notable that only 3 responses (0.8%) came from any region of the mountains. This can at least be explained, in part if not in full, by the lack of radios in mountainous regions, and the unreliability of shortwave broadcasts.

Table No.15

REGIONWISE DISTRIBUTION OF LETTERS IN RESPONSE TO RADIO QUIZ COLUMN OF S & T BROADCAST OF SPP MID APRIL 1086 TO MID APRIL 1987

Development Regions / Ecological Regions	Far Western	Mid Western	Western	Central	Eastern	Total
	Number %					
Mountain	0	0	0	1(0.3)	2(0.5)	3(0.8)
Hill	0	4(1.1)	50(13.5)	17(4.6)	15(4.1)	86(23.2)
Terai	2(.5)	1(0.3)	3(0.8)	20(5.4)	35(9.5)	61(16.5)
Kathmandu Valley	-	-	-	220(59.5)	0	220(59.5)
Total	2(0.5)	5(1.4)	53(14.3)	258(69.7)	52(14.1)	370(100)

Source: SPP record, RONAST.

Figures in the Parentheses are percentages of the Grant Total(370)

3.11 Problems of S & T Broadcast

In addition to the lack of broadcasting time, and the inconvenient time slot, a number of other problems have come to light. Four of the most important of these are addressed below: lack of trained manpower, low pay scale, lack of materials and institutional support, and narrow audience.

Lack of Trained Manpower

At present there are two SPP staff members who have taken on the responsibility of producing the program. One of these has a scientific background, while the other has not. The burden of their responsibility is somewhat eased by support from the staff of RONAST, but even so the program ought to be produced by more people with solid scientific backgrounds.

Low Pay Scale

Experts in science and technology should take the responsibility of producing the radio program, but experts are expensive to employ. The people currently employed are highly motivated, but all of them are not sufficiently qualified. One reason that more qualified people are not attracted to the job is low pay. Higher salaries would probably attract qualified people.

Lack of Materials and Institutional Support

In Nepal scientific and technological information is scarce. If it were not, the popularization project would not be so urgently needed.

Gathering such information is a costly and difficult process. Scientists and technicians are often uninterested in disseminating their knowledge. In this context, gathering information for the broadcast becomes a full-time task. Transport, audio and video recorders and studios are needed to facilitate the gathering and dissemination of scientific information to the masses.

Narrow Audience

There is not a wide variety of people who are interested in science and technology in Nepal. The results of the field survey showed that the majority of listeners were students. Students are almost young and urban. [illegible]. In rural communities, people tend to take less interest in scientific or abstract concepts. Despite the fact that most of the people questioned said that the information presented in the program was useful and appropriate, perhaps it would be efficacious to broaden the scope of the program to appeal to the older, rural section of the population as well.

CHAPTER IV

EVALUATION OF OTHER SCIENCE POPULARIZATION ACTIVITIES OF SPP

4.1 Introduction

The Science Popularization Project (SPP) has not used the press and radio as their only means for achieving their goal. Although these media constitute the focal point of their efforts, other media have also been employed. Some work has been done with Nepal Television, and with various high schools, SPP has also arranged a variety of programs, workshops and training sessions for science writers, journalists and radio broadcasters to make them more efficient in the role of disseminators. SPP has also conducted its own field research to establish the efficacy of its programs in various parts of the country. As these activities play an important role in evaluating the program as a whole, they have been considered here.

4.2 Televising Science and Technology Programme

Television is a new medium in Nepal. Two years ago the Nepal Television Project was initiated, and today the residents of Kathmandu Valley can watch T.V. There are plans to extend the capacity of Nepal T.V. to areas outside the Kathmandu Valley, but that won't happen atleast for three or four years. It should be noted that even though Nepal T.V. does not operate outside the valley, there is a substantial number of T.V. sets outside the valley. This can be explained by two things: the proximity and power of Indian and Bengali T.V. stations, and the

emergence of video recorders. Television ownership is limited to the economically well-to-do. Nevertheless, the prospects for televising science and technology and for reaching a wide variety of people are promising in Nepal. Television has its own significance among the available popularization measures.

RONAST's popularization project and Nepal Television reached an agreement on November 20,1986(Ashwin 13, 2043 B.S.) concerning televising a science programme. SPP pays Rs. 2,500 for each video it chooses to broadcast, and the studios and other facilities are provided by Nepal Television. A list is given in Annex 7 of all the videos which have been broadcasted through SPP's sponsorship. Some of the videos were actually produced by RONAST, and others were obtained from the International Development Research Centre(IDRC), and others from United Nations Environment Programme (UNEP).

Because of the small audience of Nepal T.V., these educational videos have received little notice. In addition, the people who did see the videos on T.V. are probably wealthier than average- since they own a T.V., and therefore probably better educated about science than most Nepalis. Hence, the value of the T.V. broadcasts is rather low. Moreover, Programme production for Television has been suffering from the lack of appropriate manpower and equipment. Nevertheless, the use of television as a means of popularizing science is a viable concept.

4.3 On the Spot Quiz

SPP has found the'on the spot quiz'to be an effective means for popularizing science in Nepal. High school students are the main targets of this tool. Questions included in the quizzes are taken mostly from science text books, or from the radio program. The quizzes are taped and broadcast on Radio Nepal for the benefit of those who could not be present. Five seperate quizzes have been conducted at 78 different schools between November, 1986 and April, 1987. Table 16 shows the locations and dates of the quizzes.

Table No.16

ON THE SPOT QUIZ PROGRAMS

Place	Number of Participant Schools	Dates
1. Dharan Sunsari District	9	Nov 8 - 9, 1986
2. Pokhara Kaski District	12	Feb 23-24, 1987
3. Tulshipur Dang District	8	March 3, 1987
4. Bhairahawa Rupandehi District	17	March 12,1987
5. Kathmandu Valley	32	April 19-27,1987
Total	78	

Source: SPP records.

The staff of SPP concerned with on-the-spot quizzes reported that the students of Kathmandu and Dharan scored best. Students in Tulshipur did not respond well to the quizzes. The schools which hosted the quizzes were generally cooperative and anxious to facilitate the proceedings. They often took responsibility for the local expenses of conducting the quizzes. But the local institutions who should take responsibility for preparatory activities seemed inefficient.

Rewards were given to the students who responded best of each school. First prize was a solar calculator for each member of the team in first place. The second place prizes were a pencil box and a book of general knowledge for each team member, and third place prizes were an instrument box and book of general knowledge for each team member.

The prizes and the competative aspect are alluring to the students. It is clear that on-the-spot quizzes should be conducted regularly to arouse and maintain interest in science among students in all parts of the country. Lack of manpower seems to be a serious obstacle to continuing this activity on an appropriate scale.

4.4 Field Visits

Field visits hade been conducted from time to time to monitor the progress and reception of the radio program. During these visits comments, suggestions and information needed for the smooth operation of the program were also collected.

It seems that most of the field visits were made in easily accessible areas, and that the far-and mid-western parts of the country had been neglected. This is inevitable considering the small number of people responsible for the visits. Nevertheless, some interesting information had been obtained in this manner.

It was found that medium-wave reception is very poor and unreliable during the day in some parts of the country. The short-wave band at 60 meters is audible, but this particular band is not received by many people's radios. Most radios only receive bands upto 49 meters.

Regular listeners were found to be mostly students and educated persons, especially in Dharan, Eastern Nepal, Pokhara and Tanahun. This finding has led to the conclusion that the program ought to be geared more toward rural, uneducated people in order to achieve more popularity. Pokhara was found to be an appropriate spot for staging science exhibitions, as local institutions have expressed an interest in such activities. The field visits were also instrumental in demonstrating the utility of on-the-spot quizzes.

Frequent field visits may serve the purposes of SPP in many ways. They can be an effective means for popularizing science and technology as well as for promoting the radio program.

4.5 Training Programmes

SPP has conducted two training workshops, having about 20 participants each. The Science Writer's Workshop on the Art of Science Writing was held between February 23 and March 7, 1986 in Kathmandu. The Workshop on Planning and Production of Programmes for Popularizing Science was aimed at helping radio and television broadcasters in their skill and was held between May 26 and June 8,1986 in Kathmandu.

Such training programmes may play a vital role in popularizing science and technology. Effective dissemination of information is a key to popularization. The training programmes however should be followed up closely, to enhance their effectiveness. Training alone-without such follow-up- can lead to wasted financial resources. Follow-up work could also help to ensure that writers, broadcasters or other beneficiaries of training programmes actually publish material on science and technology. So far, trainees have not contributed significantly to the popularization of science and technology.

The broadcasters training programme has been useful to promote the skill of S& T broadcasters according to the concerned personnel of Radio Nepal who is incharge of the Programme section. The trainees have been able to adapt themselves to changing circumstances and conduct interviews with S & T personnel with greater dexterity. He however had the opinion that more training opportunities would be needed to suit their specific areas of broadcasting activities.

Regarding the effectiveness of Science Writers Workshop the discussions with the concerned Staff of SPP revealed that the training being first of its kind has its own significance. But according to him the training has not been so fruitful as expected.

4.6 Media Consultative Meetings

SPP had already organized two Media Consultation Meetings one in October 10 1985 and another in March 31,1987. These media consultative meetings had been participated by newspaper publishers, S & T writers and Broadcasters. The main objectives of these consultative meetings were promoting science communications, get suggestions from mediamen, make them (media men) aware with SPP and RONAST activities. These media consultative meetings had been helpful in establishing link between Mediamen, (Journalist, newspaper publishers, Science broadcasters) on the one hand and SPP personnels on the other. Most of the mediamen however complained that their complains and suggestions have not been properly considered.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

After examination of the findings of this evaluation, the following conclusions have been reached.

Printed Media

The news media- newspapers, magazines, journals, etc- have not been covering science and technology related topics thoroughly in Nepal. A few newspapers have taken pioneering steps in the right direction, however. Various, obvious factors may be underlying the weak science and technology base, such as lack of research facilities, skilled manpower, and the passive role taken by scientists in the country in disseminating their knowledge.

The science feature service is an innovative step in Nepal, and has been contributing substantially to the popularization of science by motivating and attracting newspaper publishers and feature writers. This achievement is also significant from the point of view of the limited resources and manpower which SPP has under its control.

The science feature "Bigyan Lekhamala" in particular still has room for improvement. According to some newspaper editors, the science feature should be more attractively printed, and be geared more to the specific needs of Nepali people.

The problems faced by the science features programme of SPP are lack of materials, unmotivated science writers, a dearth of scientific journalism and inadequate manpower.

Broadcast Media

Broadcasting science and technology related information on Radio Nepal is another vital component of SPP. The response of the people to this program is encouraging. The number of letters it has received from listeners already and the rate at which letters keep coming in is impressive. At this point they receive about 15 letters per day.

The broadcast program of SPP has several problems. For instance: 1) remote regions of the country have in general shown a very poor response compared to Kathmandu Valley, and people over 30 have not been interested in the broadcast. Among younger people, the more educated or those who have studied in schools have mostly taken interest in the radio program. There still exists a large number of people who never listen to the program either because they have no access to a radio, or they have no interest in the program. These people could be attracted to the program by means of simple, short-term modifications.

The issues discussed above are, by and large, the most important ones for improving the quality of the program. In addition to these, there are a number of smaller issues which also need to be addressed. There does not seem to be enough on-air time to answer all the questions submitted in letters. The time slot alloted for the broadcast is not convenient for many of the listeners. Perhaps the largest stumbling block is that there are not enough qualified people working on the program. Without a sufficient staff, none of the problems can be tackled successfully.

At present the science information broadcast on Radio Nepal has still room for improvement both in quality and quantity. This affects not only SPP and RONAST but the government and all those institutions involved in development communications such as the Agricultural Information Section, the Social Services Coordination Council, and others.

Television Media

Nepal Television can play a highly effective role in popularizing science in Nepal with its visual impact. The services of Nepal Television, however, have been limited by several factors. Spatial and economic constraints impede the efficient utilization of this medium. The prospects for effectively communicating scientific information in the country are promising in terms of future efforts.

Not many scientific topics are addressed on Nepal T.V. at present. So far it has not even incorporated as much scientific information into its programming as it might with resources currently available. The main problems confronted by Nepal T.V. are the small number of T.V. sets in Nepal, and the lack of working electrical facilities. The infrastructure in general is barely adequate for running a T.V. station in Nepal. Both physical facilities and skilled manpower are lacking . Nepal T.V. has made some significant achievements in the two years since its inception.

On-the-Spot Quiz

The next popularization activity which was evaluated is the on-the-spot quiz. This activity has been very successful in popularizing science with high school students in particular. So far it has been mainly based in large urban areas like Kathmandu and Dharan, and consequently rural and remote high schools are often left out. The reason for only conducting the quizzes in accessible areas is that SPP lacks employees who can be assigned to this activity.

Workshops

Two workshops have been coordinated by SPP which were aimed at teaching writers and broadcasters how to best disseminate information about science and technology. So far the workshops, while being lauded by the participants, have not significantly contributed to the goal of science popularization in general. The trainees thought that the training is useful, but have had few opportunities, little time and inadequate facilities for dissemination. The workshops do serve a poignant and un-looked for purpose, however they have helped to develop linkages among those involved in science writing, strenghthening cooperation and understanding.

5.2 Recommendations

A number of problems were identified in the process of this evaluation. As a result, the following measures and steps have been formulated for improving the program in the future. Problems

identified are of basically two types: those associated with the media in Nepal, and those associated with SPP's program. They have not been seperated into categories according to this, however, because the two types of problems are so closely interlinked, that seperation is inappropriate.

The Media in General

1. Constant effort will be needed to motivate the media to publicize scientific happenings and to facilitate the Feature publication of SPP. Special Organizations and Institutions solely responsible for science journalism or productions should be created in the media such as Science Writers Association.

2. Efficient utilization of broadcast and print media in Nepal is hampered by inadequate infrastructures. The physical facilities, equipment and training available are severely limited. Consequently the extent to which science can be popularized through the media is equally limited. As media industries develop, popularization capacity also develops. Steps should therefore be taken to utilize the present facilities to the fullest extent possible and to prepare for future growth.

3. Other Media of science popularization should be sought. Inactive, silent, unresponsive and illiterate people do not respond well to news media. Science fairs are one way to reach those people. Local fairs are usually held to fulfill social and religious needs, and for marketing. Attractive exhibits or experiments staged at these gatherings would certainly attract the attention of those who are not attracted by the news media, and encourage their involvement in scientific development.

4. While science is attractive to the younger generation, technology may be more meaningful to the older generation. Technologies which can serve some purpose in production, farming, soil retention or protection from wild animals need to be given more attention in the popularization process. Research and development institutions can be called upon to supply appropriate technologies. Such new technologies can speak for themselves, and are an intriguing possibility for popularization. This approach may be particularly suitable for involving the older generation who could have many practical prolems to solve. In other words, there should be a balance between the promotion of science and technology.

5. With the same concept of utility in mind, technologies useful in agriculture should be focused more upon in the media.

6. Health related information, sanitation, hygeine and nutrition should also be emphasized for the same reasons. Health care has obvious mass appeal, and the survey results indicated a widespread interest in health science.

Science Feature

1. The science feature should be published weekly. Each subdivision (health, agriculture, physics, chemistry, biology, nutrition, etc.) should be clearly highlighted in each issue.

2. Circulation needs to be boosted. Copies should be sent to all newspaper editors, and to all the regional and district headquarters.

3. The more interesting items could also be broadcast on Radio Nepal in order to inform those who have no opportunity to read the feature itself, or the papers in which it appears.

4. Articles should be kept as short as possible, and made as simple as possible. Seperate, special issues should be published for the more lengthy, sophisticated articles.

5. Remuneration for feature writers must reflect the quality of work expected of them. Good investment brings good results. An editor ought to be employed to refine submissions into an appealing, understandable form, and to prioritize articles for publication.

6. There are a number of awards currently given to newspapers for outstanding work, and this can be capitalized upon. If criteria for awards included presentation of science and technology columns, publishers would be motivated to include more of them in their journals.

For the Radio Programme

1. The S & T radio broadcast should occur daily. The broadcast time should be moved to the evening or night; the optimum time being between six and nine in the evening. The 15 minute duration of the programme is sufficient, but 20 minutes would be better.

2. Since the question and answer component of the radio programme has proven to be very successful, in that it provides a close link between listener and broadcaster, it should be taken

very seriously. Each and every question which is answerable ought to be answered. If some questions are asked repeatedly, they should be answered repeatedly, at evenly spaced intervals. Unanswered questions should be kept aside and responded to later.

3. A systematic filing system should be employed to facilitate this process, and to allow for quick and easy reference in the future. Correspondents should be encouraged to include only one question in each letter to make filing easier.

4. The radio quiz has also proven to be very popular. Since the audience of this quiz is large and diverse, it would be helpful to stratify the questions in order to include all types of people. Harder questions could be addressed to more educated people, and easier ones to the less educated. Stress should be placed on the fact that the object of the quiz is to learn about science, rather than to display knowledge or to win prizes.

5. SPP's role in the radio programme should be that of initiator. It should not take full responsibility for the program , but train and guide the Radio Nepal Staff in doing so. Radio Nepal should be encouraged to take an interest in and responsibility for science and technology programming.

Television Programme

1, Like Radio Nepal, Nepal Television should play an active role in science and technology promotion by using its own staff along with the SPP steff. Eventually SPP would simply be an advisor, with Nepal Television organizing and executing the science

programme.

2. The Ministry of Education and Culture, Tribhuvan University, and the other development agencies can also take some of the responsibility for science popularization. They must be shown all the ways in which their work in science promotion , but other institutions should be encouraged to cooperate actively. Coopration necessarily leads to wider S& T dissemination.

Promotion Strategies

1. The above-mentioned bureaucratic strategy is complimented by executive strategies. The question of how to go about popularization must be dealt with before the programme extends any farther.

2. Popularization strategies should be selected carefully to suit each region. Rural areas have not been targetted successfully so far. The media does not reach rural areas consistently, and often has no appeal for rural people. Strategies that have been identified for urban areas, is not appropriate for rural areas.

3. Rural people are interested more in practical technologies than in abstract science. Thus, practical technologies should be the focus of the popularization strategy for rural areas.

4. Other possible ways of reaching rural people are listed below:

a. Encourage the establishment of scientific research stations in rural areas.

b. Send teams of scientists and technicians to remote areas to arouse interest.

c. Arrange on-the-spot quizzes in remote districts.

d. Use local schools, officials and technicians as disseminating tools.

e. Conduct surveys to discover the technological needs of local people, and build demonstration booths around feasible regions.

f. Organize rural science fairs.

g. Promote radio ownership, and help people to obtain them.

h. Utilize ongoing development programs and literacy classes for disseminating scientific information.

i. Mobilize HMG employees stationed in remote areas in the cause of science popularization.

j. Explore the ways and means for cooperation among South Asian Countries in matters related to science popularization.

Training Programmes

1. More frequent training programmes within and outside the country is needed to upgrade the skill of science popularization among the science and technology journalists and broadcasters.

2. The training programmes should be properly followed up and monitored regarding their effectiveness in order to make them more fruitful for science popularization.

3. Training programmes should be designed for specific needs of science popularizers. Moreover such programmes should have more practical works than theoritical discussion.

Recommendations of Popularization Experts

Some recommendations forwarded by experts in the field of science popularization may be worth considering in Nepalese context. Some of these are as follows:

1. Soience clubs may be formed in a school or locality with one or more science teacher or a scientist, doctor, engineer or agriculturists serving as advisors. (Sharffudin, 1986 PP 347-353)
2. In many third world countries, annual or seasonal fairs and festivals play an important role in the cultural life of the people. From that point of view, science fairs and exhibitions appeal not only to young but also to the masses. (Sharffudin, 1986)
3. Science museums or Science gardens can also serve as a focal point for coordinating activities of science clubs (Sharffudin, 1983).
4. Information for the mass of the people has to be in their own language and in a form through which they can easily get the message. (Sharffudin, 1986).
5. Development of science journalism through training programs may be helpful to create congenial atmosphere for S &T popularization (Amor, 1986).

6. Adequate use of Books and movies, which attract substratregies section of potential audience of S & T popularization, should be done in this respect (S & T popularization).

Motivation of Science Popularization Experts and Staff

The staff employed in SPP should be provided with the opportunities for higher studies and training in science and technology related fields.

Annex-1

Questionnaire for Newspaper Editors

Name of the Newspaper ..... Daily/Weekly/fortnightly/Monthly

1. Have you been providing space for printing S & T related informations ?

1.1 Yes ☐ 1.2 No ☐

1.1.1 If yes how frequently ?

Regularly ☐ Not regularly ☐

1.1.2 From which source you get such informations ?

From the Science Feature of RONAST ☐

From other sources ☐
(please specify)

1.1.3 Have you been a distinct and seperate column space for printing such information ?

Yes ☐ No ☐

1.1.4 Do you feel that the volume of sales of your newspaper has changed due to printing S& T informations

increased ☐ not changed at all ☐

decreased ☐

1.1.5 What are your reaction to the Science feature of RONAST?

Regarding Content .....
.....

Regarding Presentation .....
.....

Regarding language .....
.....

1.1.6 Do you find any difference between the informations provided by the RONAST Science feature and the informations provided by other sources of S & T.

2. If you have not been printing S & T informations,

2.1 Why have you been not printing S & T informations ☐

2.2 Have you been planning to do so in near future

Yes ☐ No ☐ If no give reasons

.....
.....

3. Do you have any suggestions to widely disseminate S & T information among the masses of the people ?

Annex-2

List of Newspaper Covered in Questionnaire Survey

S. No.	Name	Location
1.	Navajagaran	Lalitpur
2.	Diero	Lalitpur
3.	Matribhumi	Kathmandu
4.	Jana Sambad	Kathmandu
5.	JanaJyoti	Kathmandu
6.	Naya Nepal	Kathmandu
7.	Rastra Pukar	Kathmandu
8.	Samiksha	Kathmandu
9.	Dainik Samaj	Kathmandu
10.	Gorakhapatra	Kathmandu
11.	Deshantar	Kathmandu
12.	Naya Samaj	Kathmandu
13.	Purbanchal Khabar	Dharan
14.	Purba Times	Biratnagar
15.	Himalchuli	Biratnagar
16.	Yug Darpan	Biratnagar
17.	Richa Times	Dharan
18.	Samsar	Dharan

Annex-3

List of Science and Technology Related Programmes Broadcasted Over Radio Nepal and Their Sponsoring Institutions

1. Programmes Directly related with S & T	
1.1 Science and Technology Programme	RONAST
1.2 Rural Science and Technology	Radio Nepal
2. Programmes indirectly related with S &T	
2.1 Cottage and Small Scale Industry Programme	Cottage Industry Development Board (CIDB)
2.2 Women's Programme	Radio Nepal
2.3 Maternity Care Programme	Family Planning and Maternity Care Project-Health Ministry
2.4 School Broadcast Programme	Audio Visual Section Sano Thimi
2.5 Children's Programme	Radio Nepal
2.6 Popular Health and Sanitation Programme	Health Education Section, Ministry of Health.
2.7 Our Forest Programme(Hamro Ban)	Division of afforestation-Ministry of Forest and Soil Conservation
2.8 Agricultural Programme	Agricultural Information Section Ministry of Agri.
2.9 Urban Sanitation Programme	Sewerage Waste Management Board
2.10From Institute of Medicine to the Health post	T.U. Teaching Hospital.
2.11Tuberculosis Control Programme	Institute of Nepal Tuberculosis Control
2.12Family Planning Programme	Family planning Association of Nepal

Source: Radio Nepal, July 30th 1987.

Annex-4

List of Participant Institutions in the Workshop Organized by SPP for Radio Broadcasters

	Institutions	No. of Individual Participant
1.	Radio Nepal	3
2.	Nepal Television	2
3.	Agriculture Information Section of Ministry of Agriculture	2
4.	Health Education Section of Ministry of Health	1
5.	Radio Education Teachers Training Programme	1
6.	Tribhuvan University	1
7.	World View International Foundation	1
8.	Family Planning Project	1
9.	Women's Training Centre	1
10.	Royal Nepal Film Corporation	1
11.	Community Forestry	1
12.	Curriculum and Text-Book Educational Broadcasting Programme	1
13.	Science Education Project	1
14.	Royal Nepal Academy of Science and Technology	3
	Total	20

Annex-5

Questionnaire used for Radio Listeners Survey
Science Popularization Project

Date.....

1. Name of the Respondent .....Education.....
   Age..... Adress ..... Occupation .....
2. Do you have a radio ? Yes /___/ No /___/
3. How often do you listen radio ?
   regularly /___/ Causual /___/ seldom /___/
4. How often do you listen to the Science Programme ?
   Yes /___/ No /___/
5. How did you first learn about the Science Programme ?
   a) casual tunning /___/ b) from friends /___/
   b) from teachers /___/ d) others /___/
6. How useful is the S & T Programme ?
   a) very useful /___/ b) useful /___/
   c) less useful /___/ d) Not useful /___/
7. Which component of the programme do you like most ?
   a) Topical commentary /___/ b) Interview with Science specialist /___/
   c) Panel discussion /___/ d) Jankari /___/
   e) Science Radio quiz /___/ f) Question- answers /___/
8. Which subject do you find most useful ?
   a) Health /___/ b) energy /___/ c) Inventions /___/
   d) Environment /___/ e) Agriculture /___/ f) Others /___/
   g) any of them /___/ h) none of them /___/
9. Which sector of Information you find lacking in the programme?
   .....
10. What improvement you think necessary in the program ?
    .....
11. What difficulty you face in listening to the programme ?
    (a) No Radio /___/ (b) time not suitable /___/
    (c) Programme is not interesting /___/
    (d) Reception not clear /___/
    (e) Others ..... (Specify)

Annex-5(Continued)

12. Have you ever conveyed the scientific knowledge you received from the programme to other people ?

Yes /___/ No /___/

13. How about the language of the program ?

Generally easy to understand /___/

Generally difficult to understand /___/

Indefinite /___/

14. What do you think that tome of programme should be changed ? If yes when ?

.....

15. Any other Reactions, Comments and Suggestions for the programme.

Annex-6

Number of Listener's Letters received in response to Question and Answer Column of the S & T Broadcast'

Period (Year)(Month)	Number of Letters	Number of Correspondences responded by SPP
2042 Magh (Mid Jan-Mid Feb)	10	
Falgun(Mid Feb-Mid March)	67	14
Chaitra(Mid March-Mid April)	90	13
2043 Baisakh(Mid April-Mid May)	100	15
Jesth (Mid May - Mid June)	75	13
Ashadh (Mid June- Mid July)	128	23
Shrawan(Mid July- Mid Aug)	205	33
Bhadra (Mid Aug - Mid Sept)	263	20
Ashwin (Mid Sept-Mid Oct)	267	26
Kartik (Mid Oct- Mid Nov)	345	22
Mangsir(Mid Nov- Mid Dec)	406	19
Poush(Mid Dec'86-Mid Jan'87)	610	84
Magh (Mid Jan - Mid Feb)	482	42
Falgun(Mid Feb-Mid March)	384	18
Chaitra(Mid-March-Mid April)	276	27
2044 Baisakh(Mid-April-Mid May)	272	32
Jestha (Mad-May-Mid June)	485	84
Ashadh (Mid-June-Mid July)	524	64
Shrawan(Mid July-Mid August)	389	

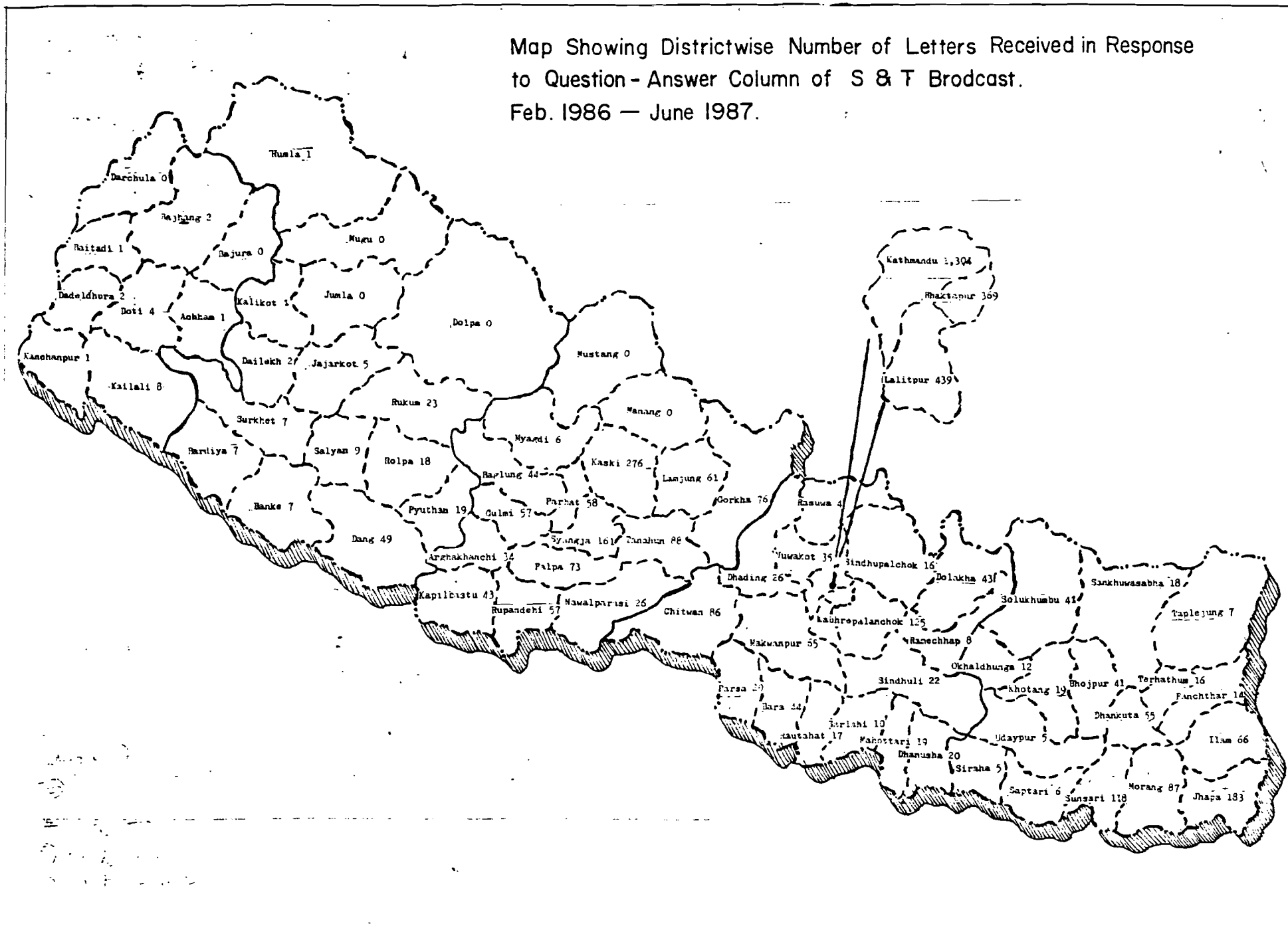
Annex-7
List of Telivised Programmes

SCIENCE POPULARIZATION PROJECT,NEPAL
RONAST-IDRC
AUDIO-VISUAL PROGRAM

Video films through Nepal Television(NTV)

S.N.	TITLE	TELECAST DATE	DURATION	SOURCE/REFERENCES
1.	'Pachis Barsma Vigyan' (Science in 25 years)	30 Dec 1986	15 mts	RONAST Produced by MPI Group
2.	'Jiwanu: Hamra Satru ani Mitra pani' (Microbes: Our foe & friends)	13 Jan 1987	12 mts	RONAST Produced by NTV-RONAST Script:Dr.S. Gupta, Teaching Hospital Director:Suman Basnet Advisor:Gokul Pokharel Narrator:Dinesh Bhuju
3.	'Bharilo Maru-bhumi' (Crowded Desert)	19 Feb 1987	30 mts	UNEP Nepali Version:D.Bhuju Script in Nepali:D.H. Adhikari
4.	'Ashaka Brikshyaharu' (Trees of Hopes)	19 May 1987	18 mts	IDRC Nepali Version: D. Bhuju A Pradhan Script in Nepali: D.H. Adhikari

5.	'Mausam Ra Hami' (Weather & We)	2 June 1987	18 mts	RONAST Produced by NTV-RONAST Narrator/ Director: D. Bhuju Advisor: Gokul Pokharel Assisted by Ajay Pradhan
6.	'Barsako Paniko Upayog' (Harnessing the monsoon)	16 June 1987	18 mts	IDRC Script in Nepali: Gokul Pokharal Nepali Version: D. Bhuju A. Pradhan
7.	Swasthya Jivan-ko Rahasya (Prescription for Health)	7 July 1987	23 mts	IDRC Script in Nepali: D.H. Adhikari Nepali Version: D. Bhuju A. Pradhan
8.	'Ronast:Ek Parichaya' (RONAST:An Introduction)		8 mts	An Introductory video film produced by Himalaya Films, Kathmandu Script: Madhav Bhandari
9.	'Vigyan Prasarak Karyashala Gosthi' (Science Broadcasters' Workshop)			Producer: Deepak Rayamajhi Narrator: Dinesh Bhuju
10.	'Ashako Jyoti' An introductory video film of Lahan Eye Hospital produced by Nepal Television (12 mts) Narration: Dinesh Bhuju .			


Map Showing Districtwise Number of Letters Received in Response to Question - Answer Column of S & T Brodcast.
Feb. 1986 — June 1987.
Humla 1
Darchula 0
Bajhang 2
Baitadi 1
Bajura 0
Mugu 0
Dadeldhura 2
Doti 4
Achham 1
Kalikot 1
Jumla 0
Dolpa 0
Mustang 0
Kanchanpur 1
Kailali 8
Dailekh 2
Jajarkot 5
Rukum 23
Manang 0
Surkhet 7
Myagdi 6
Bardiya 7
Salyan 9
Rolpa 18
Baglung 44
Kaski 276
Lamjung 61
Banke 7
Pyuthan 19
Gulmi 57
Parbat 58
Gorkha 76
Dang 49
Syangja 161
Tanahun 88
Arghakhanchi 34
Palpa 73
Kapilbastu 43
Rupandehi 57
Nawalparasi 26
Chitwan 86
Dhading 26
Nuwakot 35
Sindhupalchok 16
Dolakha 43
Sankhuwasabha 18
Solukhumbu 41
Taplejung 7
Kavhrepalanchok 125
Makwanpur 55
Ramechhap 8
Okhaldhunga 12
Sindhuli 22
Khotang 19
Bhojpur 41
Terhathum 16
Panchthar 14
Parsa 29
Bara 44
Dhankuta 55
Parsahi 10
Rautahat 17
Mahottari 19
Udaypur 5
Ilam 66
Dhanusha 20
Siraha 5
Saptari 6
Sunsari 118
Morang 87
Jhapa 183
Kathmandu 1,304
Bhaktapur 369
Lalitpur 439

Selected References

1. Development Research and Communication Group (DRCG), Farm Broadcasting in Nepal: An Evaluation of the Farm Broadcasts Programme of the Agriculture Information Service, Ministry of Agriculture. Food and Agriculture Organizations of the United Nations, Rome,1984.

2. National Planning Commission, Seventh Plan (1985-90). NPC, Kathmandu, 1985.

3. New ERA, Radio Listening Patterns in Nepal. Submitted to Human Resources Development Division USAID/Nepal, Kathmandu.

4. Science Popularization Project, The Art of Science Writing Report of the Proceedings of Science Writers Workshop and Science Writers Manual. (February 23- March 7,1986)

5. UNESCO, Impact of Science on Society. (Journal) No.144, Paris and Cordon, 1986.